

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
LUFKIN DIVISION**

**LEWIS E. KNAPPER and
LINDA KNAPPER**

v.

**SAFETY KLEEN SYSTEMS, INC.,
ET AL.**

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CIVIL ACTION NO: 9:08-cv-0084

**DEFENDANTS UNITED STATES STEEL CORPORATION AND RADIATOR
SPECIALTY COMPANY'S JOINT RESPONSE TO PLAINTIFFS' MOTION TO
EXCLUDE THE OPINIONS AND TESTIMONY OF
JOHN SPENCER —
LIVE HEARING WITH TESTIMONY REQUESTED**

TO THE HONORABLE JUDGE OF SAID COURT:

Defendants United States Steel Corporation, USX Corporation, Aristech Chemical Corporation, Sunoco, Inc. (R&M) and Radiator Specialty Company (“Radiator”) (collectively, “US Steel,” “Radiator,” or “Defendants”) jointly file their Response to Plaintiffs’ Motion to Exclude the Opinions and Testimony of John Spencer.

Plaintiffs have challenged the methodology employed by Mr. John Spencer (“Spencer”) to determine the evaporation rate of benzene from Liquid Wrench. Spencer performed this study, in part, to address the calculation of Mr. Lewis Knapper’s (“Knapper”) cumulative exposure to benzene in Liquid Wrench provided by Plaintiffs’ expert, Mr. Stephen Petty (“Petty”). Spencer’s opinion is that the cumulative exposure estimate provided by Petty is grossly inaccurate and incorrect – due in large part to Petty’s incorrect assumption of the evaporation rate of benzene in Liquid Wrench.¹ With all due deference and respect to Plaintiffs, Defendants respectfully contend that this Court should give short shrift their Motion to Exclude the Testimony of John Spencer (“Plaintiffs’ Motion”) as it is without basis in the law, facts of the case and science. If the Court determines that further examination of the merits of Plaintiffs’ Motion is necessary, Defendants respectfully request the opportunity to coordinate with Plaintiffs’ counsel and the Court to determine a hearing date which would allow for the presentation of its witnesses as well as of any witnesses Plaintiffs’ counsel may wish to call.

I. SUMMARY OF FACTS AND ARGUMENTS

A. Introduction.

Spencer is a certified industrial hygienist retained by US Steel and Radiator in this case. In his report, Spencer addresses the calculation of Knapper’s cumulative exposure to benzene as a component

¹ Defendants have challenged the methodology underlying Mr. Petty’s opinions in this case with its Motion to Exclude the Scientifically Unreliable and Irrelevant Testimony of Mr. Stephen E. Petty.

of Liquid Wrench provided by Plaintiffs' expert, Petty. See Exhibit 1, Report of John Spencer, ("Spencer Report"). Spencer's opinion is that the cumulative exposure estimate provided by Petty is incorrect – due in large part to Petty's incorrect assumption of the evaporation rate of benzene from Liquid Wrench. *Id.* at 20-21. Spencer's opinion is based, in part, on results of a study he conducted to determine the evaporation rate of benzene from Liquid Wrench ("Evaporation Rate Study"). *Id.* Plaintiffs argue that the Court should exclude Spencer's testimony in its entirety based on his reliance on data from the Evaporation Rate Study. Plaintiffs seek to exclude Spencer's opinions regarding the evaporation rate of benzene from Liquid Wrench because: (i) they claim that the test method Spencer used was unreliable; (ii) they claim that the reformulated Liquid Wrench was not sufficiently similar to the historical Liquid Wrench product. Each alleged basis of exclusion is discussed below.

B. The Evaporation Rate Study.

The production and sale of benzene-containing formulations of Liquid Wrench ended decades ago. Thus, to determine the evaporation rate of benzene from such historical formulations of Liquid Wrench, Spencer reformulated a mixture of Liquid Wrench based on historically available documents. See Exhibit 1, Spencer Report at Appendix IV, page 4. To conduct the Evaporation Rate Study, Spencer constructed a "glove box" which allowed the Evaporation Rate Study to be conducted under known and generally controlled real world conditions (herein the Glove Box Type Evaporation Chamber or the "GBTEC"). *Id.* at 2. The GBTEC included an inlet air duct and an exhaust air duct through which the air flowed to an instrument located downstream which measured the concentrations of chemicals present in the air, including benzene. *Id.* The instrument used was a ChemSense 600 mass spectrometer. *Id.* at 3. The ChemSense 600 operates through a cylindrical ion trap analyzer which separates ions according to their mass-to-charge ratios. See Exhibit 2, EPI Documents 00030-32 at 31. This information is then interpreted by the ChemSense 600 to determine the concentration of benzene,

or other chemical vapors, in the air. See Exhibit 2, EPI 00030-32. The ChemSense 600 is the only commercially available mass spectrometer with a direct sampling inlet which allows for the rapid and continuous detection of benzene. *Id.* at EPI00031. It is currently used by the Department of Homeland Security to evaluate low levels of chemicals at various ports, harbors, and other facilities at which the Department of Homeland Security believes that it is in the nation's security interests to be able to instantaneously determine the levels of chemicals in the air. See Exhibit 3, Deposition of John Spencer ("Spencer Deposition") at 222:11 – 223:2. Spencer selected this equipment because it was the best available tool to conduct his study. *Id.* at 223:8 - 10. A primary advantage of the ChemSense 600 is that it allows for detection of chemicals that evaporate quickly such as benzene - as opposed to traditional air sampling techniques - which rely on a physical separation of chemicals in a gas chromatograph, which can take 30 seconds to 30 minutes depending on the sample. See Exhibit 2 at EPI 00030; Exhibit 4, EPI Document 00038.

In addition to the use of the ChemSense 600 to measure the mass per unit volume of benzene vapor present in the GBETC, the Evaporation Rate Study also included more traditional means of sample collection. This included the use of summa canisters and a bulk analysis of the remaining reformulated Liquid Wrench at the conclusion of the tests to determine the benzene concentrations at specific points in time and to confirm the total evaporation of benzene from Liquid Wrench. See Exhibit 1, Spencer Report at Appendix IV, page 3.

Although Plaintiffs were served with Spencer's study several days before the deposition of their own expert, Petty, he offered no criticisms of the Evaporation Rate Study or the equipment used. See Exhibit 5, Deposition of Stephen Petty, ("Petty Deposition") at 8:9-17; 124:9-12;180:20-24.² Further,

² Importantly, Plaintiffs selected the date for Petty's deposition. When counsel for US Steel suggested that the deposition schedule was too compressed and suggested that the depositions be pushed back, Plaintiffs' counsel refused – insisting that Petty's deposition date could not be changed. See Exhibits 6 and 7, Letter from Plaintiffs' counsel offering date for Petty deposition and email correspondence between US Steel counsel and Plaintiffs' counsel. Plaintiffs can not now credibly

even though Spencer's report has now been available for over a month, Plaintiffs have produced no supplemental report of Petty which includes any such criticism.

II. ARGUMENT

A. Spencer's Study Method Used to Conduct the Evaporation Rate Study was Based on Scientific Principles and Industry Accepted Procedures.

(1) The Glove Box Type Evaporation Chamber was Designed Using Scientific Principles and Accepted Industrial Hygiene Practices.

Plaintiffs suggest that the data from the Evaporation Rate Study is unreliable due to the equipment and procedures used in the study. See Exhibit 8, Plaintiffs' Motion at 4. Plaintiffs' Motion contains misleading and inaccurate descriptions of the equipment and the testing procedures.

The purpose and methodology for the Evaporation Rate Study is included in Spencer's Summary Report, "Determination of Evaporation Rate for a Benzene-Containing Solvent Mixture." See Exhibit 1, Spencer Report at Appendix IV. An overview of the procedure used to determine the evaporation rate is as follows:

[i]n order to determine the evaporation rate of benzene in a Liquid Wrench formulation, benzene in the Liquid Wrench formulation evaporated under controlled conditions while the airborne concentrations of benzene was evaluated over time. The concentrations of benzene in a specified volume of air per unit time was then converted to mass of benzene per unit of time, thereby determining the mass loss of benzene from the liquid per unit time.

Id. at 1.

To insure that the Evaporation Rate Study was conducted under controlled and known conditions necessary to obtain accurate and reliable results, Spencer constructed a Glove Box Type Evaporation Chamber ("GBTEC"). See Exhibit 3, Spencer Deposition at 149:2-13. A photo of the GBTEC is attached. See Exhibit 9, Photo of GBTEC. The GBTEC was constructed in order to conduct

suggest that their own expert did not have adequate time to review the Spencer Report – after all, they were the ones who insisted that Petty's deposition go forward on the date they selected and insisted upon.

the Evaporation Rate Study in an environment where physical conditions such as temperature, humidity and air speed that effect the evaporation rate could be monitored and/or controlled.

Plaintiffs attempt to attack Spencer's study by claiming that the use of the GBTEC is "novel science." The basis of this argument is that this test method has not been approved as a method to determine the evaporation rate of a chemical component in a mixture (such as benzene in Liquid Wrench) by the American Society of Testing Materials ("ASTM"). Plaintiffs argue that because the use of the GBTEC is not an approved ASTM method any test results therefrom are "suspect." See Exhibit 8 Plaintiffs' Motion at 3 - 5.

No method has been approved by the ASTM for this purpose; however, this does not render Spencer's results suspect. Spencer testified there is no ASTM or NIOSH method currently in effect for measuring evaporation of a chemical out of a multi-component chemical mixture. See Exhibit 3, Spencer Deposition at 149:14-25; 150:1-5. Because there was no approved method for this purpose, Spencer constructed the GBTEC for use in the study. In constructing this unit, Spencer "used accepted techniques and methods including ventilation techniques, measurement techniques." *Id.* The design of the GBTEC was based, in part, "on criteria established by the ACGIH [American Conference of Governmental Industrial Hygienist] Ventilation Manual which discusses the technique for creating laminar flow in a hood or in duct work." *Id.* at 159:25; 160:1-6. Spencer explained that the "[t]he analytical techniques were standardized, calibrated methods." *Id.* at 150:8-21.

Spencer's testimony clearly confirms that the procedures and practices utilized in the design of the GBTEC are not novel or new. The underlying techniques and procedures used in the development of the GBTEC are widely accepted in the relevant scientific community. If Plaintiffs are correct - that an ASTM method is required for the test results to be considered reliable - then the evaporation rate for benzene in Liquid Wrench could never be determined through such a test as an

approved ASTM method does not exist. This is an absurd argument. The results of Spencer's Evaporation Study should not be excluded or deemed unreliable based on the fact that an ASTM method, which does not even exist, was not utilized.

The design of Spencer's study should be evaluated on its merits, which included a melding of established and accepted ventilation measurements and analytical methods. Plaintiffs offer no specific criticisms of the design or use of the GBTEC. Importantly, their own expert, Petty, did not have a single criticism of the design of the Evaporation Rate Study he could offer when he was deposed – he simply said that he had “skimmed the study” and that “the numbers looked wrong.” See Exhibit 5, Petty Deposition at 124:9-12. (emphasis added).

(2) The Equipment used in the Evaporation Rate Study was Appropriately Calibrated.

Plaintiffs' claim that Spencer failed to adequately test or calibrate the GBTEC to insure accuracy. See Exhibit 8, Plaintiffs' Motion at 4. Plaintiffs state:

It does not appear that Mr. Spencer attempted to test the calibrations (sic) on the GBTEC to make sure it was accurate. Mr. Spencer could have easily tested the calibrations (sic) on the GBTEC by testing the evaporation rates of pure liquids that have a known range of evaporation. Mr. Spencer could have then compared the results to published data. If GBTEC calibrations and data were accurate, Mr. Spencer's data would have mirrored the data in the published literature. Mr. Spencer, however, did not test the calibrations (sic) of his GBTEC evaporation apparatus. . . .

Id.

First, Spencer conducted the calibration necessary for the test. The calibration of the GBTEC is referenced multiple times in Spencer's report and the supporting documents. See Exhibit 1, Spencer Report at Appendix IV, page 2. In Appendix IV, the calibration of the GBTEC is outlined as follows:

testing of the chamber was conducted in order to determine sampling point locations, confirmation of adequate mixing, and to assure laminar flow throughout the system. Cyclohexane was used to generate a consistent evaporation rate of [vapor] into the air and measurements were taken with the ChemSense 600 at nine locations in the duct area (the duct cross sectional area was divided into nine equal sections) and compared these

values to determine the standard deviation in values based upon sample location. This result indicated consistent mixing into the air stream.

Id. at 2.

The protocol for the study also includes a bullet point summary of the testing and validation of the GBTEC. *Id.* at Support Document 17, Study Protocol 3. Spencer testified that the GBTEC was calibrated “throughout” the study. See Exhibit 3, Spencer Deposition at 151:2-5. Spencer testified that they were continually “calibrating the air flow; we took multiple measurements using a standardized velometer that was a calibrated.” *Id.* at 151:2-11. In addition to the calibrations conducted during the Evaporation Rate Study, base line measurements were also taken to “determine whether there were any contaminants that were off gassing the materials that we built the box out of or from any source that was inside our work area.” *Id.* at 152:20 - 153:3.

Plaintiffs argue that the GBTEC should have been calibrated by testing the evaporation rate of pure liquids and comparing those results to the rates in published literature. Spencer explained why such testing was not necessary before conducting the Evaporation Rate Study. Spencer testified that the comparison that Plaintiffs suggest should have been conducted was not necessary because “. . . it was a mass balance analysis. So we knew how much mass we were starting with and therefore, how much we should be ending with.” See Exhibit 3, Spencer Deposition at 154:22 - 155:7. Further, Plaintiffs fail to mention the consistency between the results Spencer found in this study—a half life of three minutes for benzene in Liquid Wrench under the conditions tested—and the half life of five minutes for benzene in Liquid Wrench determined by Dr. Mark Nicas—an expert who testifies for Plaintiffs’ counsel (Lance Lubel) in other cases against US Steel and Radiator involving Liquid Wrench. While US Steel and Radiator do not concede that any such “calibration test” was necessary—the similarity between Spencer’s results (three minutes) and the peer reviewed published estimate provided by Plaintiffs’ own expert (five minutes) shows solid agreement.

Additionally, a review of the mass balance data collected during the evaporation of pure benzene, confirms that the mass of benzene dispensed in the GBTEC and the mass per unit volume observed through the ChemSense 600 was also in good agreement, reflected by a standard deviation of between $\pm 2.4\%$. See Exhibit 1, Spencer Report at Appendix IV and Supporting Document 10 at EPI 0042-0043. All of the tools used in this study to measure air speed, barometric pressure, concentration, mass, relative humidity and temperature in determination of evaporation rate have been tested, validate, and calibrated by independent, third-party, qualified resources; and have known error rates.³

(3) Plaintiffs' Assertion That There was an Unaccounted for "Loss of Benzene" Misconstrues Spencer's Report.

Plaintiffs claim that "more than half of the benzene in Mr. Spencer's study was lost and not accounted for." See Exhibit 8, Plaintiffs Motion at 5. This statement is again demonstrably untrue by reference to Spencer's Report and by his deposition testimony. See Exhibit 1, Spencer Report at Appendix IV, page 10-11; Exhibit 3, Spencer Deposition at 223:23-225:19.

First, the core findings of the Evaporation Rate Study are that the "half life" of benzene is roughly three minutes and that all of the benzene in Liquid Wrench was fully evaporated within 30 minutes. See Exhibit 1, Spencer Report at Appendix IV, page 11. Significantly, these findings correlate well insofar as it would be expected that a chemical with a half life of three minutes would fully evaporate within 30 minutes. The data from all three types of analysis conducted—the ChemSense 600 analysis, the air sampling analysis via the summa canisters, and the residual bulk sample analysis—support these conclusions.

³ The chamber used was designed by Certified Industrial Hygienists (CIHs) following fundamental industrial hygiene practice-ACGIH Ventilation Manual and EPA chamber study design. Air Speed was measured with Velomtere-TSI VelociCheck Thermanemometer with TSI calibration certificate, May 2009. The benzene mass measured with mass spectrometer-ICx Analytical Instruments, ChemSense 600 method calibrated with benzene calibration gases by third-party, instrument expert and Ph.D chemist. The point-in-time air samples collected in Summa canisters-analyzed by certified, third-party laboratory via EPA Method TO-15. The residue analysis was conducted by a certified, third-party laboratory via EPA Method 8260B-Volatiles.

For example, the air sampling through the summa canisters indicated that virtually all of the benzene had evaporated from the reformulated Liquid Wrench within 12 minutes of test initiation. *Id.* at 8-9. These results are illustrated below:

Table 5: Summa Canister Results for Day 2 – Liquid Wrench Evaporated from Plate Glass

Can No.	Δt (min)	Airborne Concentration in ppm
7	1	9.00
9	3	15.00
11	5	Not Analyzed
8	7	5.00
10	9	0.15
12	11	Not Analyzed

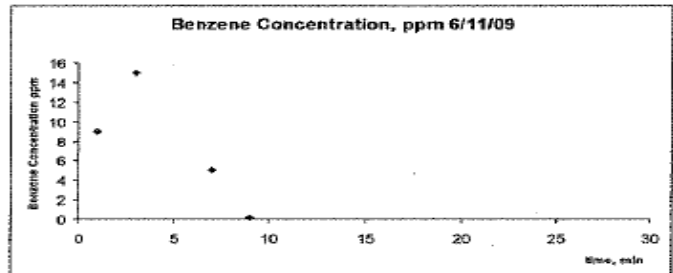


Figure 5

Table 6: Summa Canister Results for Day 3 – Liquid Wrench Evaporated from Parts

Can No.	Δt (min)	Airborne Concentration in ppm
13	1	11.00
15	3	3.00
17	5	0.62
14	7	1.90
16	9	0.58
18	11	0.04

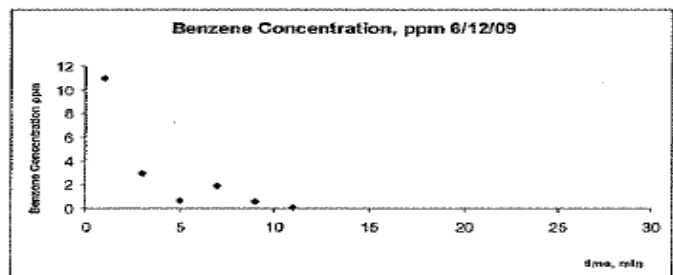


Figure 6

Similarly, the residual bulk sample analysis also confirms that the benzene had completely evaporated within 30 minutes. *Id.* Finally, the ChemSense 600 data also reflects that after nine minutes of testing, the airborne concentrations of benzene were at or close to the minimum level of detection (10ppb). *Id.* at 7. Again, these results are graphically illustrated below:

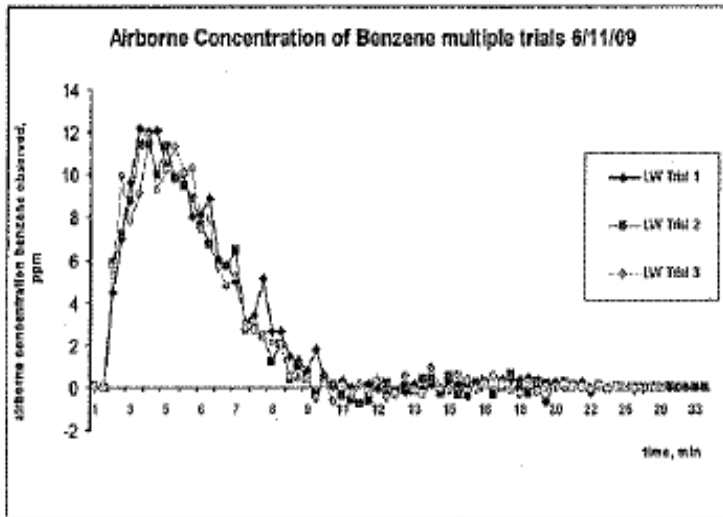


Figure 2

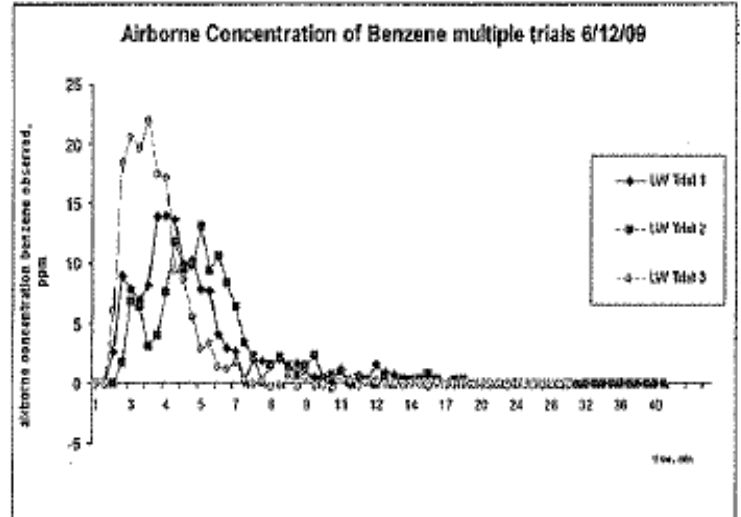


Figure 4

Plaintiffs apparently do not contest the consistent findings of all three of these analytical methods, but instead focus on the “signal suppression” which occurred in the ChemSense 600 method. As explained in Spencer’s report, his study included a “mass balance” calculation which involved comparing the beginning mass of the benzene in the reformulated Liquid Wrench to that stated by the ChemSense 600 by the end of the test process. This mass balance calculation was conducted because it is known that the ion trap analytical process used in the ChemSense 600 can involve signal interference – meaning that the signal created by certain chemicals can interfere with signals sent by other chemicals. *Id.* at 10. As Spencer explained in his deposition, all analytical methods involve some degree of interference. See Exhibit 3, Spencer Deposition at 223:18. Such interference does not render the study method unreliable, but instead requires that the scientist using the method evaluate and account for such interference – which is exactly what Spencer did in this case. See Exhibit 1, Spencer Report at Appendix IV, at 10-11. Through the mass balance calculation, Spencer determined that one of the other chemical constituents of Liquid Wrench, cyclohexane, was interfering with the benzene signal – resulting in roughly half of the benzene signal being interpreted as other chemicals. See Exhibit 3, Spencer Deposition at 220:15. This “signal suppression” – which Spencer found and described in

the study – is the basis of Plaintiffs claim that “half of the benzene is not accounted for.” See Exhibit 8, Plaintiffs’ Motion at 5.

When the signal suppression was discovered, Spencer formulated and tested several mixtures of benzene and cyclohexane and determined that cyclohexane was suppressing the signal of benzene to the ChemSense 600. However, these tests further established that the “loss of benzene” was not the result of some chemical or physical process which kept the benzene from evaporating, but instead was the results of the interference to the ChemSense 600. See Exhibit 1, Spencer Report at Appendix IV, at 10 - 11. Further, Spencer specifically determined that the rate of evaporation (again showing that virtually no benzene was being detected after nine 9 minutes of testing) was not impacted at all by this signal suppression. *Id.* Again, Plaintiffs own expert, Petty, has offered not one word of criticism about the signal suppression and has clearly not opined that such suppression is a reason to dispute the results Spencer found in the Evaporation Rate Study.

The reference to the “loss” of benzene is yet another attempt by the Plaintiffs to misrepresent the contents of Spencer’s report to the Court. Spencer’s report addresses the “interference” and resulting “signal suppression” of benzene in the readings from the ChemSense 600 in his report. *Id.* Spencer’s report notes that there is “no evidence” that the signal suppression was caused by anything other than the “reduced sensitivity of the mass spectrometer for benzene in the presence of the other organic compounds.” *Id.* at 11. Further, Spencer concludes that this is a “result of the mass spectrometer, not the result of some physical or chemical process that destroys benzene or keeps it from evaporating.” *Id.* Plaintiffs have incorrectly implied that the “half of the benzene in Mr. Spencer’s study was lost and not accounted for.” See Exhibit 8, Plaintiffs’ Motion at 5. This signal suppression of benzene was accounted for and explained in Spencer’s report.

(4) The Evaporation Rate Study Results Are Applicable to Knapper's Working Conditions.

Plaintiffs argue that Spencer's test data is not applicable to this case because it does not appropriately mimic Knapper's working conditions. This argument also fails for several reasons.

First, although Defendants agree that Knapper alleges that he was exposed to Liquid Wrench while working under sinks as a plumber, his alleged exposure also included other work environments and it would be impossible to exactly replicate each and every environment. As noted in Petty's report, Knapper alleges that he used Liquid Wrench while working on lawn mowers and automobiles. See Exhibit 10, Report of Stephen Petty ("Petty Report") at 19. Further, Knapper's alleged use of Liquid Wrench for plumbing applications was not limited to work in confined spaces or under sinks. *Id.* This fact was clearly contemplated by Plaintiffs' own expert in his calculations of Knapper's exposure as he assumed an air speed of 37.5 fpm for all exposures combined when estimating Knapper's inhalation exposure. See Exhibit 1, Spencer Report at 15. Spencer likewise controlled for the air velocity during his testing, and, to be conservative, actually selected a velocity which was lower than that used by Petty. See Exhibit 1, Spencer Report at Appendix IV, page 9. Insofar as using a lower air velocity results in a slower evaporation rate, Spencer used an air velocity which would tend to be more representative of confined space work (such as work under sinks) than Petty used. It is nonsensical for Plaintiffs to complain about this issue. Plaintiffs cannot fault Spencer for utilizing an air velocity that was more conservative than their own expert's.

Secondly, Spencer's study included a calculation of the evaporation rate of benzene from Liquid Wrench during simulated product use. Thus, its results are applicable to the working conditions of Knapper. See Exhibit 1, Spencer Report page 14.

Finally, Petty bases his opinions about benzene evaporation from benzene evaporation data taken from the Exxon Valdez oil spill and the evaporation rate of gasoline as a whole. See Exhibit 10,

Petty Report at 194 - 196. He makes no effort to explain how it is that the evaporation rates from those scenarios have any relevance at all to Knapper's working conditions. Clearly, the conditions of the Evaporation Rate Study are more similar to Knapper's working conditions than the approximately inch thick oil slick in the Alaskan Ocean at close to freezing temperatures. If the conditions of the Evaporation Rate Study are not sufficiently similar to Knapper's working conditions to be relevant, it is obvious that Petty's opinions should be likewise excluded.

(5) The Results of Spencer's Evaporation Rate Study are not Unreliable Because They are Similar to the Modeled Results of Dr. Peter Drivas.

Spencer concluded that the half life of benzene in Liquid Wrench is "on average of less than three minutes." See Exhibit 1, Spencer Report at 11. Spencer's estimate of a half life is similar to that of Dr. Peter Drivas, ("Drivas"), another US Steel and Radiator expert in this case. Plaintiffs claim that the results of Spencer's study are unreliable merely because they are similar to the half life estimated by Drivas. Plaintiffs fail to mention that not only are Spencer's results consistent with Drivas, they also are consistent with the opinion of their own expert, Mark Nicas, Ph.D ("Nicas"). Nicas' findings are reported in his peer reviewed paper, wherein he determines a half life of benzene from Liquid Wrench of 5 minutes – very close to the three minutes estimated by Drivas and Spencer – but very different from the rate of 1.1 hours assumed by Petty. See Exhibit 11, Nicas, M. and Neuhaus, J., "Predicting Benzene Vapor Concentrations with a Near Field/Far Field Model." *Journal of Occupational and Environmental Hygiene*, 2008; 5:599-608. The fact that results of Spencer's Evaporation Rate Study are consistent with Drivas' and Nicas' estimate of the half life of benzene are indicative of the reliability of Spencer's results. Thus, the consistency of Spencer's results with Drivas' modeled results and Nicas' peer reviewed published study should be a fact that supports the reliability of Spencer's results rather than the exclusion of the results.

(6). The Reformulated Product used by Spencer was Similar to the Chemical Components and Physical Properties of the Product Allegedly used by Knapper.

The Liquid Wrench formulation allegedly used by Knapper has not been produced by Radiator since 1978. See Exhibit 1, Spencer Report at 13. Because this formulation is no longer available Spencer utilized historical formulation documents to create a Reformulated Penetrating Solvent (“RPS”) substantially similar to the formula allegedly used by Knapper (“OP”). *Id.* The resulting RPS was similar in chemical composition and physical properties to the product allegedly used by Knapper. *Id.* The similarities of the products are referenced in Spencer’s deposition testimony and report.

Spencer testified that the RPS “had the same chemical constituents within the same ranges of values that was in the original product.” See Exhibit 3, Spencer Deposition at 213:6-8. Laboratory analysis by an accredited laboratory was conducted using validated methods to verify that the chemical composition and physical properties of the RPS was similar to that of the OP. *Id.*

At his deposition, which occurred before Plaintiffs filed their motion to exclude his testimony, Spencer produced the following revised Table 1 that provides a side by side comparison of the composition of the reformulated product to the original product.

Table 1: Chemical Composition of Reformulated Penetrating Solvent and Original Product

Compound	Percent by weight (reformulated prod.)	Avg. Wt. Pct. (original LW)	Avg. Wt. Pct. (original raffinate)
Cyclohexane	17.7	17.56	20
m & p Xylenes	14.9	13.17	15
Methyl cyclohexane	10.9	10.54	12
Toluene	8.7	8.78	10
Ethyl benzene	8.4	7.02	8
Benzene	5.1	2.63	3
n-Hexane	4.0	-	-
o-Xylene	2.2	1.76	2
Pentane	1.5	-	-
Heptane	0.76	-	-
Other hydrocarbons	14.1	26.34	30
Naphthenic Oil	11.74	12.22	-
Odorant	-	1.15	-
Graphite Disp.	-	0.32	-

See Exhibit 12, Exhibit 14 to Deposition of John Spencer. Spencer's report also included Table 2 that compared the physical properties of the RPS and OP.

Table 2: Physical Properties of Reformulated Penetrating Solvent (RPS) and Original Product (OP)

Parameter	Units	Method	RPS Result	OP Result
Flash point	°F	ASTM D56	87	27
IBP (distillation)	°F	ASTM D86	158.0	170
Specific Gravity	60°/60°F	ASTM D1298	0.7883	0.820

The chemical components and physical properties of the RPS and OP were similar. As stated in Spencer's report:

[c]omparing the chemical and physical properties of the RPS and OP showed generally good agreement. Therefore, it can be concluded that data generated during the benzene evaporation rate study using the ROS is representative of how benzene would have evaporated from the OP.

See Exhibit 1, Spencer Report at Appendix IV, page 5.

Spencer's test data is not unreliable because of his use of the RPS rather than the OP. Spencer's RPS was substantially similar to the chemical composition and physical properties of the OP; thus rendering results that can be applied to Knapper's alleged use of the benzene containing formula of Liquid Wrench before 1978. Moreover, since no historical benzene containing Liquid Wrench is available for testing, it is spurious for Plaintiffs to claim that a reformulated product – designed to match the original benzene containing product – should not be used.

Again, Plaintiffs' criticism of the Evaporation Rate Study is further evidence of the unreliability of their own expert, Petty. To determine the evaporation rate of benzene from Liquid Wrench, Spencer reviewed the historical formula and endeavored to replicate that formula and then conducted a test under controlled conditions – *i.e.* temperature, air speed, volume of mixture used etc. – to produce a reliable estimate. Petty, on the other hand, took data from benzene in the Exxon Valdez oil spill and data

regarding the evaporation rate of gasoline as a whole and assumed that the evaporation rate of benzene out of Liquid Wrench was exactly in between the evaporation rate of benzene from the crude oil spill and of gasoline as a whole. See Exhibit 10, Petty Report at 194 - 196. When asked at his deposition what his basis was for using this method, he said that “it would make sense to just pick the median point . . . so that is what I did.” See Exhibit 5, Petty Deposition at 19:25 - 20:17.

When asked about his analysis of how well historical Liquid Wrench matched up with the chemical constituents of the oil from the Exxon Valdez spill or from gasoline as a whole, he admitted that he conducted no such analysis. *Id.* at 22:2-4 (admitting that he did not make any distinction between Liquid Wrench, gasoline or crude oil in generating his opinion).


If as Plaintiffs suggest, a more exact match between the historical Liquid Wrench formula than Spencer obtained is necessary to produce reliable results, it is obvious that Petty’s opinions must be excluded.

Finally, and as previously discussed, Plaintiffs’ own expert, Petty, has offered no criticisms of the reformulation or how any differences between the reformulated product and the tested product would have produced a different result.

III. CONCLUSION

Spencer’s testimony should not be excluded due to his reliance on data from the Evaporation Rate Study.

Respectfully submitted,

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RADIATOR SPECIALTY COMPANY

CERTIFICATE OF SERVICE

This is to certify that a true and correct copy of the foregoing instrument has been served on plaintiffs' lead counsel listed below and on all other counsel of record via the CM/ECF system or other means in accordance with the FEDERAL RULES OF CIVIL PROCEDURE on this the 7th day of August 2009.

Messrs. Lance Lubel, John M. Black, and J. Robert Black (*Via CM/ECF*)

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